REMEDIAL PROJECT MANAGERS' MEETING

NASA/JET PROPULSION LABORATORY

7 December 2000

ATTENDEES:

Charles L. Buril, JPL

Alex Carlos, RWQCB-LA

Phebe Davol, Techlaw

Kimberly Gates,

Richard Gebert, DTSC

Jeffery C. Heath, Navy/NASA

Judith A. Novelly, JPL

Mark Ripperda, USA EPA

Peter Robles, Jr., NASA

Richard J. Zuromski, Jr. NAVY/NASA

Reported by: Louise K. Mizota, CSR 2818

Pasadena, California
December 7, 2000
9:37 A.M.

ROBLES: Let's go around the room and introduce ourselves, starting with you.
ZUROMSKI: Okay. I'm Richard Zuromski. I'm with the Naval Facilities Engineering Service Center and NASA.
RIPPERDA: I'm Mark Ripperda with the U.S. EPA.
DAVOL: Phebe Davol with TechLaw, a contractor to EPA.
GEBERT: Richard Gebert, RPM for DTSC.
NOVELLY: Judy Novelly, JPL.
CARLOS: Alex Carols, Regional Board.
ROBLES: Peter Robles, the NASA RPM for this facility.
So everybody has an agenda. So what we wanted to go over, first of all, is Project Overview by the Navy. And we'll turn that over to Richard.
ZUROMSKI: Great. I think that some of the things that we'll cover in the overview we'll cover in a little more detail later. But I wanted to give everybody an update on what we're working on and where everything is at this point.

Start with administrative record. We have received the administrative record from Cal Tech, and the Navy is currently --
ROBLES: Assessing.
ZUROMSKI: -- assessing or analyzing the record just to see if it's complete and to give NASA recommendations if there needs to be anything else done with the record. It needs to be specially indexed. And we're also -- at the same time we're going to scan in the entire record onto electronic version, onto CDs, and so we'll have an electronic copy of the entire record so that it will make it easier for us to distribute any documents we need in the future at public meetings or whatever else we may need the documents for.
And also going through the repositories in the different libraries in the area to make sure that they're complete. And that's basically what we're doing on that right now.
We're supposed to have a meeting on the 20th of this month here at JPL where they're going to give us their recommendations and basically go from there. But we should have an electronic copy of the administrative record before the first public meeting, which will be good if there's anybody who

requests any documents, we can easily just zip them out to them. But everything will be in a PDF format, so they'll all be indexed and everything will make it easy to find. That's one thing we're working on.
The second thing, I think we'll get in a little more detail on item number 4, but we have a contractor who is going to be taking over for Foster Wheeler at the soil vapor extraction pilot test. It's also going to be possible expansion of the pilot test. And we'll get into that a little bit more. But that contractor is currently on board, has submitted their preliminary workplan and health and safety plans and so they'll be taking off, taking over where Foster Wheeler left off.
We have the contractor doing --
(Gates and Heath entered the meeting room.)
ZUROMSKI: We have the contractor, Battelle, who you did see a copy -- a predraft copy of the proposed plan. And they are currently working on that. Again, that's going to be a big item in number 2. We'll talk about that in a moment.
We also have CH2MHILL, who's going to be doing our groundwater modeling and helping us with

our site feasibility analysis for pumping and treating and containments in OU-3.
We have, I think -- I think that's everybody. And so -- and Peter is going to pass this around. Do you want to pass this around now?
ROBLES: Yes.
ZUROMSKI: We're going to pass around -- we can't really give you a copy because it's not -- not all of its --
ROBLES: Finalized.
ZUROMSKI: -- finalized yet. But this is basically showing you what we're spending our money on, where the projects are and who's doing the work. But that will kind of show you what we're doing at this point. So you can just take a look at that at your leisure. But that will kind of show you what we're doing at this point.
RIPPERDA: One of these, we'll look at it and pass it along.
ZUROMSKI: Right. Just look at it and pass it along. It's not final yet, but there's a couple things on there that are pending. So we don't want to -- we can't really officially give it out to you quite yet. But if you do need it we can make copies.

ROBLES: What we want to do is once we finalize this to give you a list of all of our contracts to show you where they're at and everything else. Not just the timetable of the Superfund schedule, but what is the Navy and all of the contractors in there.

I'd like the two individuals who walked in, if they could identify themselves for the court reporter.

GATES: Kimberly Gates.

RIPPERDA: Who do you work for?

GATES: I'm sorry. NFESC.

HEATH: And I'm Jeff Heath. I also work for the Navy Facilities Engineering Service Center.

ZUROMSKI: Jeff is my supervisor. And Kimberly is going to be helping us out with OU 2 work right now. And we'll kind of be like, hopefully like Judy's been to Chuck. Kimberly will be helping me out in a lot of the work that we're doing, since things are starting to expand rapidly. It's more than maybe I was expecting to do in the beginning. So Kimberly is going to be helping us out on this as well.

ROBLES: Okay.

ZUROMSKI: So anyway -- and another thing, back

on that schedule for the different contractors, what you'll see is you'll see a lot of different names right now. And the reasons for that are, that's the way that we're trying to get -- basically handle the transition from Cal Tech, by using different contractors that have specific expertise in certain areas.

But eventually, we see it as things being streamlined into either one or two major contractors that will do most of the work. But in order to -- the way we've been getting the work from Cal Tech it's been easier to put it on these specific contractors, on their work plate rather than just trying to figure out who is going to do everything at once, because we didn't really know, since we're new to this game here. So that's our game plan at this point. And we'll be further finalizing and formalizing that in the future.

ROBLES: As one of the items on the Project Overview, first item on our agenda list, is the recommendations that the Navy will present to NASA on the administrative record. We will want to talk to you and Cal Tech on that on a telecon in the future so we can make sure we're all on the same wavelength.

ZUROMSKI: Probably January's.

ROBLES: Probably January will be the key is right now so that we have that.

The same token is just give you the -- Chuck Buril and Judy Novelly will still be involved from the standpoint they will still come to meetings. We still have a task order with the prime contract. They are involved from the standpoint of looking at Cal Tech's interest. They will have input because they have corporate memory here, so they will be an integral part of the meetings.

All right?

ZUROMSKI: Okay.

ROBLES: Are there any questions or any issues on the first item or overview? Any ideas? Once we get into the specifics, I guess then we'll be able to talk a little more.

RIPPERDA: Yeah. Nothing.

ZUROMSKI: Okay.

Number 2. We're going to leave this one to Peter, at least to start off.

ROBLES: At least to start off.

We are going to -- first of all, on the proposed plan, we are trying to get our contractor on board. We are hoping that CH2MHILL would be

awarded --

ZUROMSKI: This is Battelle.

ROBLES: Oh. I'm sorry. Battelle. This is Battelle. That we would --

ZUROMSKI: Battelle has sent you all what we're calling our pre-draft version, which is really an internal draft to show you that we've done the proposed plan.

What Peter is going to talk about here is when we did get that proposed plan submitted to our NASA folks for internal comment, some new issues came up that we hadn't perceived. And we are currently dealing with that right now. And that actually has to do with this little chart that we've passed around as well.

ROBLES: The issue that came up at NASA headquarters is that even though CERCLA is functionally equivalent, there are specific guidelines that NASA needs to develop for the NEPA process. And one of the things that we want to do is make sure that our proposed plan incorporates that. And that's what we're asking Battelle to look at. And that's what this chart is.

RIPPERDA: What document does this come from?

ZUROMSKI: This is from a Department of Energy

guidance document. Because our -- the attorney that we -- general counsel is a formal Department of Energy person, and the best guidance that we've seen for any of this so far is from this Department of Energy document. So that's the reason why we're -- we basically sent this document to the contractor to analyze and see where this little flow chart comes into play with the proposed plan.

If you look on the chart, in Figure 2 there are -- you have what you call the NEPA values. Then you have the CERCLA values, which is the CERCLA process. And then when you filter that through, these are the things that are left over that aren't covered by CERCLA. And the contractor is currently working on revising that proposed plan in order to meet these different requirements in NEPA.

And what's happening is, on Monday of next week Battelle is sending us a new, revised draft that I told all of you about, how it's going to be pretty significant. The format maybe is going to be different from what we had sent you. And on Wednesday Battelle is coming out here, and CH2MHILL as well, and we're meeting with the general counsel here and with Peter to discuss how we're going to incorporate these types of NEPA values, not only in

the proposed plan that they're finishing for OU 2 right now, but also in all of our future documents so that this is a known requirement. So all future documents you'll see will have this incorporated into it automatically, whereas this was kind of a new thing that popped in before we got this one out.

GEBERT: So you have to do an EIR? Is that what you're --

ROBLES: No. It's just that the proposed plan has to have these covered so it could be functionally equivalent all the way around. What the CEQ has basically stated is that even though by law CERCLA is functionally equivalent to NEPA, it is -- the evolution of NEPA has shown that there is some missing items in there for the CERCLA process. And so we want to make sure that we include that in there so that we have no problems in that sense.

(Buril entered the meeting room.)

ROBLES: That's one of the things we're looking at now. We[re hoping that we can get you a copy to you on the 2nd of January. We would like that to start as the formal comment period for your draft for the proposed plan. If we get it earlier, we're going to send you RPMs a copy. We're still just going to say that the 2nd of January is the formal

start of the 30-day process. We're hoping we can get something earlier.

I don't think it's fair to give you something before Christmas and New Year's and expect the clock to be ticking. That's not fair to you. But if we can get something earlier to you that's fine. But the clock will start on the 2nd of January. That will be formal. We can get it to you before that.

RIPPERDA: And you're calling that the draft-final?

ROBLES: The draft-final.

ZUROMSKI: Well, no. I think we're actually going to call it just the draft. Because I don't think you have --

ROBLES: I'm sorry. The draft.

RIPPERDA: It's not quite fair to give us something that we haven't seen yet.

ZUROMSKI: No, no. It will be the official draft. And what we're asking for, is a 30-day review will begin on the 2nd of January and we'll be due on the 1st of February, I believe. And then we'll probably have about a two-week turnaround for the draft-final and another 30 days from there and Peter will go through the rest of the schedule from

there.

ROBLES: Right. So that's what we're looking at for that. Ultimately what we are looking at is once the draft and draft-final process has gone through, that we are tentatively scheduling public meetings on the weekend, week, Thursday-Friday --

ZUROMSKI: Friday-Saturday.

ROBLES: Friday-Saturday?

ZUROMSKI: Yes.

ROBLES: Are you sure?

ZUROMSKI: Yes.

ROBLES: Okay. Friday-Saturday, 6th and 7th of April or 13th and 14th of April. And what we are -- we will come to you is to have a meeting before then so that we can state how we're going to do these public meetings together.

GEBERT: What were those dates again, Peter?

ROBLES: The weekend of the 6th. 6th-7th of April or 14th-15th of April.

ZUROMSKI: That will be just for OU 2.

ROBLES: It will be here on site. What we're going to look at right now. And that's one of the things I wanted to talk about.

Is that too early? Is that too late? Anything else on that? Because what we want to do

is kind of give the public meeting so that we can address this issue and also make sure that those plan, once it gets through so we can get our Record of Decision for OU 2 out there to the public.

The format that we were looking at -- first of all, is the time comfortable for you, for you guys?

ZUROMSKI: That time is based on 30-day review for the draft, two-week turnaround, draft-final another 30 days, and then the final comes out like the last week of March. Give us -- we'll probably already have the planning done for the meeting, and then as soon as that proposed plan is finalized, we'll be having the public meeting just basically the week, weekend after.

We're doing it on a Friday-Saturday, Friday for maybe people who work on weekends and Saturday for people who work during the week. And then that way we can cover everybody who would have any kind of concerns on the --

RIPPERDA: Are you planning kind of an open-house format with posters? Are you planning like, you know --

ROBLES: Booths.

RIPPERDA: -- presentations, sections, twice?

ROBLES: No, no. Booths. This is one of the things I wanted to talk about, is we are envisioning that each of the RPMs, NASA as well as Cal Tech will have a booth there with information.

Yes.

BURIL: Cal Tech is not an RPM.

ROBLES: Or whomever. If Cal Tech wants to participate, or someone.

We're also going to ask the Raymond Basin to have a booth there. We want to have the City of Pasadena and Lincoln Avenue if they want to participate in that as well. There will be booths, and we will have our information there for the people.

If they have questions, we'll take those questions down, and then we will address them back again so that way people can ask those. We will have a place for them to add a mailing list. They probably are on the mailing list, but there are changes in address or form or anything else. We're hoping to have it in Von Karman so that they can come in, they can go around and look and they can stay as long as they want to and get information. That's what we want to do for over those two days. We felt that was the best way to do that. That way

they can specifically ask questions on any of the issues that they have on that item.

ZUROMSKI: They'll probably get more information from going to a specific booth, if you're amenable to this, of course. Going to the phantom issue that has to deal with the original Water Quality Control Board issue, they'd go to the Regional Board booth. If they had overall general questions about what we're doing, Peter and I would be there as representatives for NASA to answer any questions they would have.

We have the same for you, possibly if we -- haven't talked with the stakeholders about this yet. But if the Raymond Basin, City of Pasadena, who are intimately involved in the entire process, would like to show their support for what we're doing as well, because it seems like they're on board with us --

ROBLES: They're stakeholders.

ZUROMSKI: -- have them there as well, because as far as from the public perception standpoint, it would show the public that we're all standing united on what we decide on.

So that's why I want to make sure everybody is agreeable to this type of format as

well. I think you get more information to the public through this type of format rather than having just we stand up there, telling them what we're doing, they can ask a few questions and everybody goes away. This is a little more open, public friendly than the other type of format. And if it works well, we would have the same for OU 1 and 3 eventually.

CARLOS: Do you still plan to have a formal presentation in addition to --

ROBLES: Not -- that was not our plan.

ZUROMSKI: No.

ROBLES: We found that this is -- at DoD when I was working there, we found this is the best way because then the individual can actually ask questions of the -- and there's one on one and can get information if they want to and if they're interested. And we want our contractors there as well so they can answer the questions. We may have a booth just on SVE, soil vapor extraction, so that they can know what that is and show them a little bit, maybe maps of the area and so on. So that way they can ask questions and it can be an individual issue.

ZUROMSKI: And also if you had just a formal

presentation, you have to have it at a certain time and not everybody -- maybe somebody doesn't want to get there at 10:00 o'clock for the meeting. Maybe somebody wants to get there at noon because they're working on Saturday and have lunch. It makes it easier. So that basically we're giving a formal presentation to everybody who comes up and asks us. So it's more work, maybe, on our part because we have to over and over again, state what we're doing, but it's individualized. So it's more -- hopefully more effective, is the key. But if we needed to have like, for example, one presentation at a certain time during the day, we could do that as well, but we weren't planning on that.

But that's something I think that we'll discuss probably by the next meeting. We'll have -- the contractor will be here to tell you about how we're planning on doing this, and we can at that point have formal input on does this sound like a good idea or not. And we'll also schedule it with you to make sure we come up with a formal date, finalized date for when we want to do this.

ROBLES: We would like to have a preplanning meeting for this.

ZUROMSKI: Right.

ROBLES: So we would probably have a working group meeting just to discuss about the public meeting, who do you want there, any space requirements you may have to be there. You're talking about bringing other people involved in -- public affairs folks and so on and what you think about it so we can make sure.

If we need to push the date further back because there are conflicts, that's fine, or that avenue. We think that's the earliest that we could have it. And that will allow us to meet that.

GEBERT: I like the date. I'm comfortable with the date.

ZUROMSKI: Okay.

GEBERT: This would be like a half a day?

ZUROMSKI: It would be probably a half a day each day.

Probably from like 10:00 to 2:00 each day. And that way it gives us a good range on both days. It's pretty hard for -- unless somebody's out of town, everybody should be able to make time during those two times. And, of course, if somebody gets there at 2:00, we're not going to just say, "Oh, it's 2:00 o'clock. Time to go home." It could be open until 2:00 or something like that. But it

would work out, we think, a little bit better that way.

So that's our general plan. And I think that the overall schedule comes up based on having the public meeting, having the proposed plan. And I think the ROD should be done, based on this, by the end of August, I think, is the goal at this point. So we had envisioned having it done by the end of the fiscal year, which is October 1st, and we should easily make that at this point.

So that's OU 2 at this point.

ROBLES: Does anybody expect any issues or problems from your agency if you need to go back and talk about that? You guys have contacted your public affairs, or need to contact your public affairs folks?

CARLOS: I don't see any problem.

ROBLES: Okay.

GEBERT: Yeah, I don't see any problem either. Usually for our RAB we have, you know, formal presentation. But open-house workshop, we do those also. So that's -- you know, we would have no problem with either format.

ROBLES: We just want you to think about that as you go back and think if there are any special

requirements that we need to provide for you or anything else, we want to make sure that we provide for that. Some people say, "Well, we need power because we've got some displays that we want to do" or "We have a presentation."

RIPPERDA: The State and I are going to show up with really elaborate multi-media displays.

ZUROMSKI: I've seen one of those EPA ones before. Those were pretty good.

BURIL: Why am I believing this?

ROBLES: The key is, you know, we felt, and I've seen this work the best way, because people feel much more at ease to ask questions instead of a big meeting where only -- we can entertain certain people and it just goes on and on and on. People get tired and walk out. This way it's almost individually that we're addressing it.

The other question is that we want to think about inviting the public media, since this is a public meeting. Okay. So I want you guys to think about that. All right? Because there'll be probably some cameras out there looking and asking questions with lights in your faces. So that's one of the things I want you to consider on that. That's why I think we need a working group before,

so we have at least one meeting focusing on the public meeting, how it's going to be handled and the logistics and other items and other issues.
ZUROMSKI: We can either do it in addition to like on a separate day from the next RPM meeting or we could do it -- we could make is a very long RPM meeting. But I think it's probably going to take a good half day just -- together just to show you what we're planning, to plan it out to make sure that all the logistics are taken care of.
GEBERT: I would think a separate meeting, like a dry run type of thing.
ZUROMSKI: Exactly.
ROBLES: Yes.
ZUROMSKI: So that would be -- we haven't really talked about meeting times or anything yet. But that would probably be based on looking at getting -- probably after the -- when we get to the draft-final stage, probably be the beginning of March time frame, a good month before the meeting.
ROBLES: We'll probably give you a call and ask when would be a good time to meet after the holidays and so on, just to have this as a working meeting. Okay.
If nothing on item 2 -- I mean item 3,

let's go to 4. Operable Unit 2, Soil Vapor Extraction Pilot Study.
ZUROMSKI: Okay. Like we talked about earlier, we have a contractor that we brought on board to specifically take over Foster Wheeler's work on the SVE pilot study. It's Geofon, G-e-o-f-o-n. And they will be -- actually, they just put out a site trailer last weekend, on Saturday. They just submitted their workplan to continue Foster Wheeler's work, which basically is the same -- is a very slight modification of what Foster Wheeler has already submitted in the past.
Since it's a pilot study, and I know there's not really a formal requirement as far as a review for you, I'm asking from you -- we're going to modify the operating plan for the one we have out here a little bit based on some performance things that we want to play with when we're working on the SVE.
So would you want to see a copy of that at this point, when it goes like -- when we have like a draft-final version of it?
RIPPERDA: Does this involve expanding the system at all, or just --

ZUROMSKI: This one doesn't. This one is just for tweaking what we have currently. What's going to happen, though, is we're going to have a separate workplan for expanding it. And I know you're going to want to see that one, because that will involve possibly adding additional extraction wells -- well or wells, an additional system and how we will operate the two systems, whether it will be concurrently, or how we phase the operation of the two. That will be a separate item that will be coming out.
And I'm not sure, and Kimberly might be able to tell me, maybe, did it say in the current workplan when they are expecting to have next workplan for the expanded, or --
MS. GATES: No. There's no mention of the system.
ZUROMSKI: There's not. Okay. But there's no mention of -- do you remember when -- so I'm not sure when that's supposed to come out. They're just going through their original workplan right now and trying to figure out what we've got going out there anyway.
So I would say probably that's another January item. We'll be reviewing the expanded pilot

study workplan. And so I will -- I don't know how we've done that in the past with Foster Wheeler, if we sent you just the initial draft or if we just sent you like a draft-final.
Do you have any preferences?
RIPPERDA: By doing things as a pilot, you run a slight risk in that -- I imagine you're going to, in your expanded pilot, ramp it up to whatever you expect to have your final operation be. I'm sure you're going to be committing capital and resources to it. And then we're going to do the ROD after that. And then your remedial design document will, in essence, just be this is what's working.
But at that point if any of us regulators are unhappy with what you have, you haven't given us, you know, full review opportunity, we're going to come to you and say "You're remedial design is inadequate. You need to change it" and you're going to say, "Well, we just changed it six months ago." And we're going to say "Tough."
ZUROMSKI: Okay.
RIPPERDA: So you should either give us, you know, full chance to review the pilot study --
ROBLES: Before.
RIPPERDA: -- or you should be willing to --

ROBLES: Accept changes.
RIPPERDA: -- accept changes after the ROD.
ZUROMSKI: Okay. That's fine. I don't think -- I think that at this point, then, we probably won't send you what we're doing just to get this thing rolling again.
RIPPERDA: If you're tweaking operations, you know,let us know what you're doing. But I don't need to review --
ZUROMSKI: Okay.
ROBLES: I want to have as much input from the RPMs before. I always understand this is a dynamic system and as more information comes in we may have to change systems that are in place after a Record of Decision has been done. That's common.
The key also is that the proposed plans need to also be sent to the Raymond Basin so that they can make their comments on the impacts to the adjudicated groundwater. So we have a lot of stakeholders involved in there. So I expect that there will be changes. The key is that we would like to minimize that at the ROD stage. But I don't envision that we're going to say, "Hey, we got a ROD. We can't change." That's not -- that's not correct.

RIPPERDA: The ROD doesn't really memorialize the design.
ROBLES: Right.
RIPPERDA: It memorializes --
ROBLES: The decision.
RIPPERDA: -- the decision. The design document that says how many bore holes, how deep, what pressures.
ROBLES: Right.
RIPPERDA: And that's what you spent money on January and February on, new bore holes and new bores, and come September, October, November, where you want to be saying, you know, "This is our design and we're unhappy with it." As far as -- there could be some potential trouble by ramping up your pilot study now without giving us --
ROBLES: Adequate time.
RIPPERDA: -- primary document kind of reviews.
ZUROMSKI: Okay. No, I think we'll do that, then. We'll do the regular review cycle for the expanded pilot study. And that way it will make it easier. Because you're right. If this works, and as we've seen through the work Foster Wheeler's done, it's been very successful. We're having the contractor evaluate whether or not there is a need

or where that need would arise for additional wells for additional extraction. I know that Foster Wheeler had talked about that in general in the past, but there was never really any "This is where you should put a well." We're looking at that right now. And then when and if that happens, which should be January tine frame, we'll just start the formal review. Because even by the time while you guys are reviewing it and while they're getting ready to drill and do all that other stuff, we might as well have it all done at the same time to kind of streamline the process. So okay. We can do that.
ROBLES: Talk about schedule?
ZUROMSKI: For the SVE?
ROBLES: Yes.
ZUROMSKI: Let's see. The SVE contractor, activities, expansion. The schedule looks like, at this point, and I'm not sure, Kimberly might be able to tell us more about this because she's going to be involved in this heavily, is it looks like they're going to be getting out -- we're getting the final comments on the workplan out this week.
MS. GATES: Yes.
ZUROMSKI: And that's for the draft workplan for that they're doing at what we're calling Site A,

which is your initial site. And they'll probably, since there is Christmas holiday, they'll probably be starting either -- over the next couple weeks with some break. Do they have a schedule in there?
GATES: According to the schedule and general workplan now, their start-up meeting is December 19th.
Zuromski: Okay.
gates: So that's when they plan to start working.
ZUROMSKI: So that's when they'll actually be out here looking at what's out there. I mean, they've seen the system, but they actually haven't played with anything yet. So it looks like at least for the 19th is the schedule at this point. And so then they'll be operating that. And then once they -- I think what they're going to try to do, and correct me if I'm wrong, but they're going to try to do is start operating the system, see how it's working, see what -- see what it takes to operate it, then do the workplan for the expanded study.
So that way they have some idea of how this system has been operating so they can, hopefully, apply the success we've had here so whatever sites we may move to in the future. So

what we're calling this one right now is, we're calling Site A, and then we're going to move on to sites B and then, if necessary, C as well. That's what we're looking at. So that's the general schedule for what should be going on that.

I think we're also trying to clarify, and I'm not sure in the Foster Wheeler workplan how they had operated in the past, whether it was -- when they had certain criteria that they met when they shut off and then let it rebound and turn back on. I don't know. Chuck might have more information on that.

But we're trying to clarify that in this workplan. When they hit a certain asymtotic level, that's the point where they shut it off, do their monitoring, look at the monitoring, then make a judgment of when to turn it back on or which screens to turn back on. Because it wasn't too clear, I don't think, from what we've seen. So we're trying to make it -- this is the way we're going to do it so it's just obvious when somebody looks at it what we're doing.

And I think a lot of that is based on the learning curve that Foster Wheeler went through. So we're trying to capitalize on what's already been

done.

So that's the general schedule for that. And I think another issue will be with the monitoring, with the soil vapor monitoring. I know that in the past what we've done is quarterly soil vapor monitoring.

Oh, and we should talk about those documents in my office.

Foster Wheeler has been sending you, I believe, maybe by e-mail information on the soil vapor monitoring for the quarterly monitoring they've been doing.

No? Nothing at all? Okay. I know that in the past, I guess from what Chuck has told me, that nobody really ever -- you guys didn't want all these extra documents for the soil vapor pilot study and the quarterly soil vapor results.

I have all these in my office. If for some reason you do --

BURIL: Rich, one correction. We usually would pass out the table of results that came from studies at RPM meetings.

ZUROMSKI: uokay.

BURIL: So I know that kind of data has been available to the agencies. As far as the formal

report was concerned --

ZUROMSKI: Okay.

BURIL: -- those are available. But heretofore no one expressed a need to have the actual --

ZUROMSKI: Okay.

BURIL: -- formal report. The data appeared to be sufficient for the time being.

ZUROMSKI: Okay. Then what I will tell you is if you want a copy of those reports, I have a ton of them. I have three boxes of them in my office if you do want them.

But what I also wanted to talk about, and this is probably to be part of the expanded soil vapor -- SVE study, will be more a formalized, if necessary, soil vapor monitoring program. And whether that's quarterly or that's based on the performance of the system, it could be more regular, it could be less. We don't know. We're going to ask the contractor to look into that.

And so I wanted to see if you had any input on, since in the past we've never really had any real formal plan for quarterly monitoring. I mean, we've been doing it ourselves.

Do you have any input on what you'd like to see in such a plan? Do you want us to do a

quarterly? Do you want us to do it based on performance? Is there a benefit either way?

CARLOS: I think, Mark, in one of the documents before the SVE pilot study, before they got the pilot study, I think there was a plan, like a monitoring plan --

BURIL: There was.

ZUROMSKI: Okay

CARLOS: -- concerning schedules and criteria, you know, at what point they shut down the system when you begin monitoring.

BURIL: Yes. There was a formal presentation of a plan prior to the implementation of the program.

ZUROMSKI: Okay.

DAVOL: Richard, does it make any sense for, I guess, Geofon, they've done some analysis for all of this soil vapor data, right, that you're talking about?

ZUROMSKI: Yes.

DAVOL: Is there any way of them digesting it into something that would -- because that would explain why they're tweaking this system, right

ZUROMSKI: Uh-huh.

DAVOL: Because they're doing something based on the results. Right?

ZUROMSKI: Uh-huh.
ROBLES: You want the rationale for that.
DAVOL: Do you think that makes sense?
ROBLES: Yes
BURIL: Let me remind the group that currently Foster Wheeler, as one of their close-out items, is in the process of summarizing all of the soil vapor extraction --
ZUROMSKI: Okay
BURIL: -- work done thus far. And I think that any kind of additional summarization by Geofon would be aided greatly by that report.
ZUROMSKI: Okay.
BURIL: So rather than Geofon taking raw data from what we currently have --
ZUROMSKI: Uh-huh.
ZUROMSKI: -- I think it would be more useful to wait for that report --
ZUROMSKI: I agree.
BURIL: -- to come through and then on the basis of that information, whatever other kinds of analysis that you would want to have put before you, give Geofon the opportunity to have the benefit of that report and then go on from that.
RIPPERDA: But when is Foster Wheeler going to

have their summary?
BURIL: I would have to check with them. I'm not sure. I believe it's the end of this month, but that's one of the things I'd have to double check.
RIPPERDA: I don't really want --
ZUROMSKI: Okay.
RIPPERDA: -- your volumes of raw quarterly monitoring results.
ZUROMSKI: Are you sure? They're nice binders and everything. There's five of them. And if you like them I'd give them to you.
RIPPERDA: No.
ZUROMSKI: Phoebe? No?
DAVOL: No.
ZUROMSKI: No takers?
RIPPERDA: But I would love to see the summary
Buril: It's a great doorstop.
RIPPERDA: I got plenty of those.
ZUROMSKI: Okay.
RIPPERDA: Certainly before we look at, you know, changes to the existing pilot study, you know, wells, whatever, we want to see the current summary plus, you know, whatever goes into a justification for whatever it is you want to change or add.
ZUROMSKI: Okay. That's a good idea. So we'll

probably just wait for Chuck's summary to come out before we'll take any further action as far as how we're going to actually digest this data and put out something new. I think that they probably done that to some extent, but I think that Chuck's right, that that would aid us and aid Geofon in doing that. And I will make them aware of that, because I wasn't aware that was happening. So -- okay.
RIPPERDA: And then the workplan for the pilot study --
ZUROMSKI: Uh-huh.
RIPPERDA: -- It wouldn't really have the full recipe for, you know, when to turn it off and all that --
ZUROMSKI: Uh-huh.
RIPPERDA: -- but certainly you'd have that by the time you do the ROD.
ZUROMSKI: Okay. Well, we're actually asking them to do it -- to do a little bit more than has been done to -- maybe not 100 percent, since it is still a pilot study, this is the exact time we'll do it because we do want them to tweak it to maximize the performance. But at this point there hasn't really -- I mean, it's been a pilot study. When Foster Wheeler needed to tweak something, they

tweaked it. And so we're trying to just help them get a idea of what they're going to do, because we just want to make sure that we know what they're doing as well. So that's the idea around kind of formalizing their process. But you're right. Since it is still is a pilot study, if they needed to vary it for some reason because they needed to tweak this or tweak that for performance reasons, we encourage them to do that, of course. Okay.
What about as far as the vapor monitoring? So I guess From what Chuck's telling me, that it was presented to you in the past. But since we haven't actually -- you haven't been receiving formal reports, you've just maybe been getting some data at meetings. Is there an interest in the way that it's been done in the past, just continuing just to give you data or -- on a regular basis, or do you have any preferences as to if we're doing it based around the performance of the two, one or two different sites that are operating? Because we might have to take it more frequently rather than quarterly.
Is there any kind of ideas that you have on that?
GEBERT: I don't see any need, really, to see any quarterly data. Especially on the pilot study.

ZUROMSKI: What about just generalized? Maybe just --
DAVOL: Summary.
GEBERT: A quarterly report.
ZUROMSKI: Right. Right. Maybe a quarterly report on what's been done.
GEBERT: What's been done.
ZUROMSKI: Because I'm trying to see -- I mean, I think that there was maybe a need in the past to have a quarterly report on soil vapor ex -- on the soil vapor results to help us in operating the system. But, you know, do we -- if we even -- maybe we only need to do, you know, a semiannual round of everything, but since -- because we're doing so much more around the pilot studies themselves.
So should we propose something like that to you in the workplan or -- see, I'm not really sure.
BURIL: May I make a proposal?
ZUROMSKI: Sure. Uh-huh.
BURIL: I think one of the things that's going to be key for our folks to understand is, the changes within the soil vapor extraction study take place, what is the impact to the overall soil vapor situation in the ground.

ZUROMSKI: Right.
BURIL: So within the workplan, it would be my thought that there should be some form of monitoring that is able to track not only what the concentrations are in the ground so we simply know what the mass of the contaminant is still there --
ZUROMSKI: Right.
BURIL: -- but also what changes are affected as a result of the changes that are put into place through the changes in the SVE pilot. You get double bang for your buck, so to speak, in that regard, because now you can understand what you're dealing with as far as whether you've made a right change or a wrong change in the SVE system. And you've got data to back it up.
ZUROMSKI: Uh-huh.
BURIL: So certainly any kind of long-term pilot study ought to include a monitoring program of some kind.
ZUROMSKI: Right.
BURIL: Quarterly would make sense only in so much as more frequent is horribly expensive and doesn't give you a whole lot of data, a whole lot of useful data, in my opinion. And less frequently may or may not reflect the number of changes that you

make within your pilot study.
ZUROMSKI: Okay. Well, we -- the other thing is, see, we haven't even -- the contractor hasn't even touched on the subject yet. So I'm basically looking for input such as Chuck's giving me as to when I do meet with them what I want them to do. Because they're really not familiar with what's been going on in the past. So the whole idea here is to make sure that we do get the data that we need to back up the performance of the system as well as the changes in time, the changes of mass in the ground.
RIPPERDA: Right. And reporting that you've done or that JPL has done in the past shouldn't really matter for the future, you know, because this started as a pilot study.
ZUROMSKI: Sure
RIPPERDA: And it's like, "Okay, it works. Oh, we're getting stuff out of the ground. So, oh, let's just keep running it." And, you know, we all said "Oh, cool. We'll get some mass out of the ground. So keep running it." We didn't really care that much of what was going on because it was kind of gravy, like, oh, you've got some holes in the ground, you're sucking stuff out --
ZUROMSKI: Uh-huh.

RIPPERDA: -- just keep on doing it. So now it probably -- it is time to give us a report of all the wells that have been running, how much mass has been taken out, you know, pressure graphs per well, you know, pressure effects on monitoring wells so when we look at it, you know, final design and we can see if we agree or not. So we should have one --
BURIL: Let me be sure that you realize that the Foster Wheeler report will be providing a lot of that information.
RIPPERDA: That's why I wasn't saying anything, you know -- I was just saying a report that we see needs to have all that kind of stuff.
BURIL: I would suggest that whatever report Geofon put together incorporate basically the same approach that Foster Wheeler had used all the way along. And at the same time, if there's a change to the current monitoring program that's necessary based on the results that we see --
ZUROMSKI: Uh-huh.
BURIL: -- that should be discussed prior to implementing it.
ROBLES: Right.
BURIL: There certainly needs to be something,

you know, known by the agencies prior to actually implementing a change. Otherwise, everyone sits around going "What happened?"
ZUROMSKI: Right.
ROBLES: It will be in the proposed plan, for the expansion, to you guys. And I would like to see a sampling and monitoring protocol in there from the standpoint of what we want to change so that they can have a chance to look at it and approve of it at the same time.
RIPPERDA: In the workplan.
ROBLES: In the workplan.
BURIL: When you say "workplan," you're talking about the SVE expanded pilot.
ROBLES: Right.
ZUROMSKI: Right.
BURIL: The one coming in January. Is that right?
ZUROMSKI: Well, based on what we've seen so far, I'm not sure of the exact schedule, but I think January is what they're looking at, based on their -- they've been analyzing the data for over a month now and they're ready to come into the field for the first system. So based on that, and based on -- remember the meeting we had with them that one

day, I'm pretty sure that they said it was going to be on the heels of the other one, because they're basically analyzing the data and looking at the performance of this one and saying "Where else can we make a dent in the --"
BURIL: At some juncture those two efforts need to merge.
ZUROMSKI: That's what's -- that's probably what's going to happen. Between probably what we submit to you, because we'll probably end up getting an internal draft before we even give it to you and somehow we'll be merging what Foster Wheeler's done, what Geofon is continuing to do and what Geofon plans to do all into one kind of plan.
DAVOL: The Foster Wheeler report will talk about all of the operation conditions.
BURIL: It will talk about all of the various parameters that they've been measuring over the course of time and the results as they were able to discern based on all the data that they have currently. And once that's taken care of, that would form, I would think, the basis of any data needs that may be still outstanding for an expanded program. And then the workplan would reasonably be able to point those out and then identify how you

would gather those data to fill the gaps.
CARLOS: When is the completion time at Foster Wheeler?
BURIL: I'll have to double check that. I believe it's the end of this month, but I'll double check with that and let you know.
ZUROMSKI: Well, that should coincide well with what we're doing, so -- okay. Well, that's good. I didn't know about that.
ROBLES: Anything else on number 4, item number 4?
Okay. Let's go, then, to item number 5.
BURIL: Pete, can I back up for just one quick minute?
ZUROMSKI: Sure.
BURIL: The question that I have is, since we did have this, you know, relatively formal proposal in front of the agencies some time ago for a soil vapor monitoring and that we had implemented that over the course of time --
ZUROMSKI: Uh-huh.
BURIL: -- are we now indicating that we are -- suspended that particular program pending the development of the new one?
ROBLES: Huh-uh.

RIPPERDA: No.
ZUROMSKI: No. We are taking the next round of soil vapor samples.
BURIL: I just wanted to be sure that that was --
ROBLES: We're not suspending anything.
ZUROMSKI: No. If any changes come it will be in the expanded plan that we'll agree to. But, no, the contractor is actually -- I think it's --
BURIL: So it will continue as per status quo until such time as the plan is agreed upon.
ZUROMSKI: Right.
ROBLES: The way I like to operate is, we're not going to change anything unless we have proposed that to the RPMs --
ZUROMSKI: Right.
ROBLES: -- they have a chance to look at it and make recommendations.
BURIL: I misinterpreted what was said. It sounded to me like we were going to stop until we --
ZUROMSKI: No, we're not going to stop. We're going to continue, and then through the new expanded program we'll probably -- at that point we're all going to look -- we're going to have the contractor look at what's been done --

BURIL: Okay.
ZUROMSKI: -- and analyze it to say what is the best way to go. And if that is -- if that is the status quo, then that's what we'll continue to do. But if they come up better based on, since they're adding a new system, since they're going to continue to operate the one here, if there's a better way, hopefully they'll propose that to us.
But no, they are on contract right now to -- I think they're supposed to come out within the next month to do the regular quarterly soil vapor monitoring. And also the groundwater monitoring, too.
ROBLES: Yup.
ZUROMSKI: So that is ongoing.
BURIL: Okay. Great. Thanks.
ZUROMSKI: Sure.
ROBLES: Okay. If nothing else on number 4, let's go to item number 5, Groundwater Pilot Study Status, starting with U.S. Filter Fluidized Bed Reactor.
We've had to --
ZUROMSKI: Yeah. I called Mark about this. And I know that --
And Alex, I'm not sure to what extent you

were involved with the letter we received from Mark Pumford. Maybe not at all. I don't know. Okay.
I don't know. I really didn't know what was -- where that letter was coming from at that point.
But basically, we've been operating since we received the letter from the Regional Board, and then the subsequent letter from the EPA saying let's go forward and move forward with this system. We've been achieving great results with the perchlorate from the FBR, had nondetect coming out of it pretty much the entire time. They did have some -- one upset during the -- when we first started to back up through the FBR because they were tweaking the amount of food they were feeding the bugs and so we had one hit that came out higher, but, of course, it didn't go into the effluent because we had the ion exchange on the end, which was to basically take care of that kind of process.
ROBLES: Explain FBR.
ZUROMSKI: The fluidized bed reactor?
Everybody -- I guess, Phebe, you're the only one who hasn't seen our pilot --
DAVOL: I haven't seen it yet.
BURIL: And we're not going to let you, either.

DAVOL: I'm familiar with the concept.
ZUROMSKI: The fluidized bed reactor is basically, they are taking the groundwater out of the ground, pumping it through the bottom of the fluidized bed media made up of granular-activated carbon where they've grown a biofilm of perchlorate-reducing and nitrate-reducing bacteria.
Groundwater flows up through the media. The bugs degrade the perchlorate and nitrate. Not sulfate, just perchlorate and nitrate. If you degrade sulfate, then you get H2S. You don't want to do it with that. They have it -- basically, they have it made so that when the last of the perchlorate is degraded the reaction stops, goes through some aeration and then also back through granular-activated carbon to remove any VOCs in the groundwater and actually, some of which are removed in the bed as well. And then there's ion exchange on the end.
So what we were finding is that the ion exchange was treating -- yes.
BURIL: You missed the bag filter between the --
ZUROMSKI: There is a bag filter. And that removes just the excess biosolids.
So there are some excess biosolids there

that are produced.
So basically what we found was that the system, we've had excellent reduction, perchlorate, nitrite to nondetect levels. Zero VOCs. We've had four GAC beds. There's not enough VOC concentration to go through the four §GAC beds at all. The only problems we had, which we talked about several months ago, was with the sulfate and the chloride, which are two levels. The levels that were proposed by the Regional Board are Basin Plan levels based on mineral content. And we were having some problems meeting those because we don't have any treatment for those. We're basically -- and we're also not adding to them. I think we're -- the groundwater is coming out around 25 parts per million of chloride and we're putting it back in
25 -- I think 25.7, because there is some -- when you degrade perchlorate in situ you're degrading about 700 ppb of perchlorate. We're getting a little bit of chloride. But again, the range of magnitude is very insignificant.
Then the same thing with sulfate. We're pulling it out of the ground around 44 and we're putting it back in at 44. So what we're -- one of the issues we figured we'd use is, we have the ion

exchange on the end to act as a failsafe for perchlorate in case there was some upset in the system, which there hasn't been to this point. And so what we had was we were -- just fortuitously we were also treating sulfate in the ion exchange, which was great. You know, we weren't really expecting to do that, but that was fine. Then what we found was eventually the sulfate was loaded up on the ion exchange.

And so we had this issue with, okay, well, so now we're basically pulling it out at 44, putting it back in at 44. We said, well, we better -- should we change the ion exchanges. So we tried changing the ion exchange. And by doing that we brought our sulfate levels back down to nondetect. But what are you exchanging them for? Chloride. So then we were going to -- we were spiking up our chloride concentrations.

So there was really -- it's like a no-win, catch 22 situation. So we basically decided, and I talked with Mark about this the other day, was that instead of spiking up our chloride to these levels instead of -- and having the -- maybe the benefit of having a short-time reduction of sulfate, just to have one -- we're using one ion exchange bed right

now that's already loaded with sulfate but still is a failsafe for perchlorate, that -- so we're basically -- sulfate and chloride we're putting it in -- pulling it out and putting in at the same level as we originally had expected back several months ago, but -- and what we had decided really did come true, based on the operation results.

So basically, the only things that we have been -- as we said in our letters, was the chloride and sulfate don't meet the Basin Plan requirements as I think everybody did know, and we -- but everything else has been nondetect. So that's been the general results throughout this whole study.

And we've been -- I think we've learned a lot through a lot of these little upsets, such as when it's time for full-scale operation how are we going to handle chloride and sulfate, because they are well below the drinking water levels, which are, I think, 250 ppb. But if we are going to think of any type of reinjection in the future, there's a possibility we're going to have to use Basin Plan levels.

So I think we've learned from the different little upsets we've had, but we still haven't figured out a good way to deal with those.

That wasn't really the goal of this test anyway. The goal of this test was to see how we could treat perchlorate in the groundwater.

BURIL: Richard, have you done anything with regard to the robustness of the system to deal with spikes or --

ZUROMSKI: Yeah.

BURIL: -- valleys within concentrations?

ZUROMSKI: Well, one of the big things that we did was when we shut down for three weeks back in October, we started it right back up again and they were expecting a lot of the biofilm to have had died during that time because there was no perchlorate feeding it.

Well, the system started right back up nondetect. So that was a good thing from the robustness of the bugs themselves survival. If the system ever goes down we know that just by recirculating the water through it we're able to keep the bugs alive and so the system would -- technically, should work on a full scale the same way.

BURIL: Does that account for the potential for the substrate itself to absorb perchlorate --

ZUROMSKI: In -- I --

BURIL: The substrate that's within the fluidized bed --

ZUROMSKI: Uh-huh.

BURIL: -- being carbon

ZUROMSKI: Uh-huh.

BURIL: -- if that was --

ZUROMSKI: That was part of it, uh-huh. Yes.

BURIL: Have you been able to determine whether or not that is adding to your removal efficiency or not?

ZUROMSKI: I do not know. I will see that in the final report. But I know that it was a factor, because they did use virgin carbon in the start up of the bed. And that carbon, as we also found on the front end of the system when we originally had some of the carbon on the front end, was taking up perchlorate because of the low concentrations that we have. And that is one thing.

So what we ended up doing is while we were running in recirculation mode we did spike the system with perchlorate to, number one, load the bed, the carbon bed with perchlorate so that we wouldn't be treating it with the carbon anymore. We would make sure that we're treating it only with biological. We also saw -- we started, I think,

with levels anywhere from 250 to 300 ppb coming in. And we're up to about -- I think we've hit 750 and 800 at some points during the last couple weeks coming out of the well. Of course, all nondetect. As we expected, we were more looking for the lower ends to see how it treated at lower food. But what we found is that the high nitrate concentrations in the groundwater at the site have -- basically keep the bugs alive by themselves. So it doesn't even matter if we have 300, 200, 700 ppb of perchlorate. As long as we have that nitrate in there, that's what the bugs are truly feeding off of and that's what's keeping them alive.

BURIL: When you say "high nitrate," what are you talking about?

ZUROMSKI: Between four and six, I think, ppm, I think are the numbers that they're getting right now.

BURIL: That's a nomenclature thing. I find that pretty low, myself.

ZUROMSKI: Well, low compared to maybe another place.

BURIL: Okay. Go ahead.

ZUROMSKI: According to their -- to what they're looking at, that's high nitrate, because normally

there's very little nitrate in a normal system that they'd be just treating perchlorate.

So anyway, just basically made the system that much easier to operate and it's that much more efficient. So they've had -- so they have -- you know, they have tweaked the system a little bit based on the amount of food they've been giving it, which is ethanol. And so basically they've tried to tweak it as much as they can, working with the concentrations we have in the groundwater here. And thus far, there hasn't been any issue with the system to be unable to degrade perchlorate or nitrate. So from that end of the test, it's worked very well.

From the end of the test with the sulfate and chloride, we've learned a lot on our -- what's going to help us and what's not going to help us. How we'll deal with that in the future will be something that CH2MHILL will be working on, basically taking the results from the three pilot tests that we're doing and trying to figure out what we can do on full sale. And I think the data we have from this pilot test will definitely help them in trying to make that determinations.

ROBLES: It's clear that one of the major issues

is the Basin Plan. It's going to be a major driver in what alternatives we use and what technologies do we use. It's going to be a main driver in that. That came very clear from the initial issues of what comes out.

ZUROMSKI: Uh-huh.

ROBLES: And it's not just the focus of the chemical we're trying to treat. It's the byproducts that come out is going to be the major issue on this. They may be limiting our options. But so be it. That's what we have to live with here.

RIPPERDA: When you say "byproducts," you're not talking byproducts --

ZUROMSKI: No. Just things that are in the ground already.

RIPPERDA: (UNINTELLIGIBLE)

ZUROMSKI: Right.

ROBLES: Well, the Regional Board used it as a byproduct, even though we're putting it back in the ground the way we took it.

RIPPERDA: We haven't even really tried yet. Don't give up before you try.

ZUROMSKI: Right.

ROBLES: Well, that's the key. Then we're going to have to talk about life cycle costs, engineering

and all that other because -- I know what you're saying.

RIPPERDA: I'm saying, "Don't say, 'Oh, my God, they're going to make us do reverse osmosis on the back end.'" So we can't do anything.

ROBLES: No.

ZUROMSKI: No. And actually we'll get to that in the next one. What we're hoping to do is based on the results of the Calgon pilot study, the U.S. Filter pilot study and the Foster Wheeler one that we do in January. Those will look -- most of those are looking at perchlorate. But such as we found with the U.S. Filter one, we've also seen something that we can use based -- for things like chloride and sulfate, and how we're going to make that design decision. So no, I think that is an evaluation that's going to be done. But no, it's not limiting us in any way.

RIPPERDA: Okay.

ZUROMSKI: It's just saying this is what you can and this is what you can't do.

RIPPERDA: It sounds like you can still reduce chlorate and sulfate, that's great. But if you can't economically, you know, Mark Pumford's defense this time, if this was just a little pilot study

and, you know, sure, an engineer from Regional Board had come out. But kind of hit them over the head at the last minute. We've got at least a year of lead time before --

ZUROMSKI: Right.

RIPPERDA: -- you're going to be doing anything.

ROBLES: Right.

RIPPERDA: There is some variations in the Basin. The Basin Plan is for surface discharge and you can do things a little differently if it's groundwater injection. Some ways it's tougher. Some ways it's easier. But, you know, I'm sure the Regional Board -- his group was kind of ambiguously willing to let you proceed with this. But with more briefing in detail up front --

ROBLES: Right.

RIPPERDA: -- you might get a more suitable resolution to chloride and sulfate.

ROBLES: The U.S. Filter fluidized bed reactor pilot study, in my mind, I was hoping before then to, I guess naively, thought there might be the silver bullet out there that would help us clean up everything that would meet all the requirements. But it's going to be much more difficult. And I think the issue becomes for us now, economy is now a

big issue. And I know that shouldn't be the main driver, but it's going to be a main issue of, you know, will we need that. Because from our preliminary meetings with -- was it Cockindall?

BURIL: Kuykendall.

CARLOS: Kuykendall.

ROBLES: The Regional Board has some very stringent requirements about reinjection. We're using it for Operable Unit 2, that it's going to make it more difficult for us. We're going to try to meet that. But that's going to be one of the major issues. I was hoping that we could have that silver bullet of technology work on all the issues. It's going to be much more difficult.

BURIL: I would kind of point just in kind of a hesitant sort fashion what's taken care of the chloride and sulfate in the U.S. Filter system is the technology that Calgon tested. It's ion exchange.

ZUROMSKI: Well, it's only taking care of the sulfate.

BURIL: Right. Right.

ZUROMSKI: But with the problem of having chloride being exchanged in there --

Buril: No, you're right.

ZUROMSKI: -- it's always a catch 22.

BURIL: It's the same thing that we had with Calgon.

ZUROMSKI: But this study, the U.S. Filter study is -- they're just about complete. They're going to be shutting down right before Christmas, the week of the 18th. And basically it will sit for a couple weeks before they move it out because they usually try to do all this on the weekends. Since it will be Christmas time, there won't be anybody here. We're just going to try to avoid that.

So probably the first week of January we're going to pull out the U.S. Filter system and then move to the Foster Wheeler packed bed reactor system. That should be, I think probably the second week of January that one's going to be put in based on, you know, getting that contractor up and rolling at this point. So --

RIPPERDA: The packed bed reactor is very similar overall to the fluidized -- the biological reactor is going to be different, but you'll still have all the other components.

ZUROMSKI: Right. Actually what we're doing is this is -- originally our idea was to use one small packed bed reactor to -- just to see if the concept

works. But we've actually expanded it a bit to -- actually, we're going to have three reactors running at lower flow rates, probably about 2 gpm each testing different type -- testing basically the robustness of not only of the packed bed reactor but different biological media. One is a -- one was proposed in the Foster Wheeler draft pilot study, or draft FS for OU 1 and 3. It was Perc one ace. It was by UC Riverside. It's a proprietary bacteria that they use. We're going to be testing that.

We're also -- also based on the results of our microcosm studies that we did for this site we have -- one of our Navy contractors has isolated a perchlorate-reducing bacteria natural to the JPL environment. We're going to use that in the second reactor. And then we're going to use the same bacteria that's in the U.S. Filter reactor. We're basically going to scoop some of the biomass out of this one when we're done and add that to a third reactor. So we're testing not only the viability of the packed bed reactor idea but also of different types of organisms that we can use to do degradation of perchlorate.

BURIL: Wasn't the base thought for what we're currently testing the (UNINTELLIGIBLE) filter, the

AeroJet system?
ZUROMSKI: It was. But it's a food processing waste, is what it is.
BURIL: Right. Right.
ZUROMSKI: Basically, since it's been so successful on a fluidized bed, we figured why not try it on a packed bed.
BURIL: Absolutely.
ZUROMSKI: The design is a little different, but at the same time it may be just as successful. So we don't want to limit ourselves.
BURIL: The reason I bring that up is that particular strain is one that's been used on an exceptionally large system at AeroJet in Rancho Cordova.
ZUROMSKI: Uh-huh.
BURIL: So that one has already demonstrated an ability to scale up and do so somewhat successfully.
ZUROMSKI: And the same with the one on the USC Riverside. They did some limited bench scale tests with Foster Wheeler for the FS and had some pretty good success with that one. And then we had, through our microcosm study that was done through Envirogen, they showed that not only for in situ, but maybe ex situ remediation, that we have a bug

that we can use naturally occurring. And you know that when you use a naturally-occurring bacteria there's more success that it will be robust in the system, because you're sending the groundwater with that bacteria through the system. It's going to be, maybe, possibly more effective.
And so at the same time that's going to maybe help us with our in situ studies. But that's a whole 'nother thing that we're going to work on as well, so -- that looks like it's going to be January time frame.
And then we have in situ pilot study which CH2MHILL is going to help us on to some extent. They did work for the Navy in Texas. They did an in situ. Actually, they did injection wells -- an injection well barrier of -- it was actually --I think it could have been a slurry wall. I'm not sure. But they basically did a mile-long trench of in situ at a Navy site in Texas using in situ remediation for perchlorate and had very good success.
BURIL: Please tell me you're not going to dig a trench.
ZUROMSKI: No. No. Basically what we're going to do is capitalize on that same type of technology

and do it through extraction and injection in situ treatment rather than having a trench.
No, we're not going to dig a 200-foot trench a mile long on the site because -- somehow I don't think that's going to happen.
BURIL: It would be an 800-foot trench a mile long.
ZUROMSKI: Yeah. But that at this point we're waiting for CH2MHILL to get on board on working on that. We have them doing other stuff. But that will be one of the things they'll be helping us with.
And the selection of the contractor possibly could be the same one that they used in Texas, but I'm not sure. But that looks like it's going to be springtime as well, because moving into item number 6, we can talk about under item number 5 as well, the data that we're getting from all these four different pilot tests will be used by CH2MHILL along with data on extraction and modeling and reinjection and to basically come up with some different remedies, proposed remedies for OU 3. So trying to get all this done in the springtime so that we can make a, you know, very -- you know, a good selection of technologies or combination of

technologies to get the site cleaned up.
So go back to number 5. Are there any further questions on the pilot study status?
ROBLES: We're doing a lot of pilot study because we want to have as much alternatives as possible. And the way to do that, we think it's going to take a complete matrix of different technologies to be able to do this as we continue so. So I know we're spending a lot of time and effort, but I think it's worthwhile for us.
And you can't find this information out there. We're at the cutting edge of it. So I see this as a benefit that hopefully we will find some type of technology. I'm still looking for that silver bullet.
ZUROMSKI: Or silver bullets.
ROBLES: Silver bullets, yes.
BURIL: As long as you don't point one at your head, Peter.
ROBLES: No other questions, let's go on to 6, our introduction to our New Groundwater Contract. Groundwater contractor is going to be CH2MHILL. We've had a little bit of difficulty getting them on board, but we're hoping that in the next couple weeks we'll get them on board, and one of their

main efforts is going to be modeling. Modeling is one of the major issues that has been requested from NASA headquarters and from other people. So we're going to put a major emphasis on that.

Our thing is that even though I think we have a superior modeling, more than what MWD had for this area, we want to get even more finer than that. This is under report, our item number 7 issue, which I will get into more later. But the opinion is that we may need to do a little more investigation to get our modeling up to speed. We may be looking at and proposing to you that we may have to dig some more sampling --

ZUROMSKI: Monitoring wells.

ROBLES: -- monitoring wells.

ZUROMSKI: Yeah. They're going to -- CH2MHILL, through their modeling is going to be looking at several things. They're going to be looking at, number one, data gaps that will impact our ability to put in, you know, a well-defined system in OU 3. They're going to be looking at injection or extraction and injection, the reinjection, infiltration, whatever it may be, options specifically because we do have a goal now that we're shooting towards containing the plume.

So they will be modeling specifically for different scenarios that we're going to be looking at.

And so like Peter said, if there is an issue that we need to add extra monitoring wells, we will do so. And at the same time, they will be also supporting, to some extent, what Peter will talk about later. Possibly we might be able to get the Arroyo Well from City of Pasadena if we replace that well somewhere else. And part of that modeling effort will be where to properly place their new drinking water extraction well so it's not in the middle of a plume, so it's not anywhere where we're going to have to deal with any type of impacts again on it in the future.

So that will be another part of the modeling effort.

Yes.

BURIL. You've indicated the need for more work to fill data gaps.

ZUROMSKI: I haven't indicated the need. I've indicated that they're going to look to see if there is a need.

BURIL: Okay. That is not what I heard.

ZUROMSKI: I have not indicated. I don't really know. And that's what they're going to be doing.

ROBLES: They may say that there's enough data there already.

ZUROMSKI: Right. They're basically taking the Foster Wheeler model that was done through mod flow.

BURIL: That's what I was going to ask. What model are they planning to use?

ZUROMSKI: It's going to be something based on mod flow. I don't know exactly.

BURIL: That's fine.

ZUROMSKI: But there's a few different 3D systems that they were looking at. But they are going to base it on mod flow. And based on their analysis of what Foster Wheeler has already done and what we have indicated our goals are for the site, that's what they're going to be looking at in greater detail since now we have some specific objectives for where we want to go. So they'll be doing that.

They'll also be doing, Mark, as you've requested in the past, they'll be helping us with any type of DH 97, DHS 97-005 effort that we may need to assist City of Pasadena with. Hopefully by providing them, if possible, with a new well to replace the Arroyo Well, because we'll be using that one for extraction, we can model around and try to

figure out where they can put it without having to use that. I mean, that's one of the ideas. Whether or not we can do that, we don't know yet. But that will be something we'll be looking at. And also to come up with a plan for in the event that it does arise, they will come up with a short plan analyzing this policy to see how we, as NASA, will have to help and in what manner will help City of Pasadena in the future, if we need to.

ROBLES: We'll tell you, Mark, we have asked the see of Pasadena, they have no plans to submit a 97-005 permit. But we want to be prepared for that if it does come up, as you suggested. So we're pushing that as a major issue. That was a big item.

ZUROMSKI: And then finally, incorporating the modeling, incorporating all the pilot study data into a selection of a system or basically probably an analysis of several alternatives, selection of some types of systems that we can present to you in what we're going to call probably some kind of feasibility assessment.

Rather than a feasibility study, I think what our plans are at this point is to do this through some type of nontime critical or some type of removal action. Whether it's time critical or

nontime critical, we haven't decided yet. But instead of going through the feasibility study analysis first, through an actual formal feasibility study, do it through this method because of the urgency of the problem. And then when we're basically -- this will be -- this will become the feasibility study eventually. But instead of going through the formal -- going through the plans of the feasibility study, we'll be doing it through EE/CAs or whatever other types of documentation we need to do to push it through as a removal action so that we can get out in the field and protect the monitoring wells that are threatened at this point.

So that's the plan at this point. And that's what CH2MHILL will be doing for us. They haven't started doing that for us yet, so I don't know what -- I don't really have any results to show you at this point. But we will -- things will be moving fairly quickly in the next three months, I'd say.

ROBLES: Going to number 7, to piggyback on number 6 on that, we have had two meetings with the City of Pasadena, one here, and then we went, myself and our attorney, went to talk with the Pasadena Power & Light manager, who is interim now for about

six months until they find a permanent director.

We have been waiting for them to submit a proposal. Their original verbal thought process is that they would like to deed us, give us, whatever, lease us, whatever, the Arroyo Well that has been closed. And we've asked also for them to look at the Beiner site, which is up on it as a place for putting in potentially future remedial technology train up there. In that what they want is for us to compensate them so that -- for lost opportunities and also for putting in another well to replace that one. That's where we're looking at the monitoring issue.

I've had discussions with NASA headquarters, and their basic comment is as long as it meets the NCP and as long as it meets what our proposals are and our regulators approve of it, we can go forth. We can't make any promises as yet about, you know, lost opportunity and other issues. And that will be negotiated. But nobody can make a recommendation on which way we're going to go until we see the proposal.

We were supposed to have the proposal from the City of Pasadena, the engineering proposal two

weeks ago. We still haven't seen it. So they're still working on it. I think that they were under the assumption this is going to be easy for them. It's not. They're going to have to sit down and talk about it and look at what they want to look at.

But that's what we're -- we're working very closely with them because we see this as a win-win for all of us. If we could get that Arroyo Well -- I already talked, I said, with NASA headquarters. What we will probably do, if we could get the closed Arroyo Well, probably officially close that and put our own well in there, because that seems to be right in the middle of the plume and use that as an extraction well and then do the technology treatment that needs to be done and then bring it back on site to reinject.

The issue is where would we put the replacement well so that we can get back on line. That's where the modeling comes in. We want to make sure that we deal with that.

ZUROMSKI: I think we're also going to model scenarios for their pumping, based on their pumping schedules as well. And that will impact where a new well goes, because we don't want it to impact our extraction well. And we also want them to possibly

tone down the extraction of maybe their Well 52 --

ROBLES: Right.

ZUROMSKI: -- so they're not drawing the plume towards them anymore. And by giving them a new well they can extract at higher rates, maybe they can tone down this one to help us in our remedial activity, so -- but all these are part of this engineering plan that they're supposed to be submitting to us. And that's what we're waiting for.

ROBLES: We're waiting for that as well. So that's where the status is. Once we know more about that, one of the things we wanted to do is bring that up in an RPM meeting to show you what they proposed, what we're looking at so we would have your inputs on that as well. Because the issue of where that well goes has to be within the scope of the CERCLA process as well. It's an item that we want to --- we will be looking at providing them -- It will be their well, so they would be inputting it -- we would provide funding for that in whatever mechanism that is, whether it's compensation or what have you, we're not sure. No deals have been struck. Nothing has been promised. It's just that we're just at the discussion process as well.

We're trying to leave the lawyers out of it. We want to make this an engineering issue before we get into any formal agreements on what it is and compensation and so on. And that's why we had a private meeting with the director at his office to say "Let's focus on the engineering. We'll deal with the legal compensation issues later." But let's make this as an engineering issue to be able to do that.

One of the things we had talked about is that we would want to support them in the modeling so that the selection of where that well would be would be optimum for everybody. It would include all of the operations of not just the City of Pasadena, and us, but also the Raymond Basin, what they have with their adjudication and their MWD project that they were planning on doing.

ZUROMSKI: Because that might have some -- again, the conjunctive use with MWD, especially if they're putting in Colorado River water, would be an issue for our site. So we're trying to look at all that because we don't want them adding further perchlorate into the basin where we're going to have to start cleaning up because they're putting water in here.

We're trying to make this a win-win all the way around so that we're encompassing our remedial objectives and our objectives for assisting the City of Pasadena all into one plan rather than we do our thing and they do their thing, and then, you know, who knows what happens from there. So we don't want to do that.

RIPPERDA: So there's a lot going on there.

ZUROMSKI: Yes.

RIPPERDA: What do you think is a timetable for you guys getting control of the Arroyo Well and selecting a site for injection?

ROBLES: First of all, we're waiting for their proposal, at which time we would analyze it and turn it around, hopefully, once we get it. And that was a key issue. They said that they would get it to us by the end of November. Here it is the 7th of December and we still haven't seen it. Nor the last contact with them do they even have an idea of when they could get it. They originally went into this thinking that, oh, it's easy. We can bring it together, put something and give you a proposal. It's not as easy as they thought because they've had some internal issues. Once we get that, we were looking at turning this around within about 30 or 60

days to find out through our engineering analysis and see, and then there would be a couple of iterations on that.

What I want to do, we have the -- the driver in all of this, for you RPMs, is that at the end of next year the agreement is up for renewal.

Is that correct, Chuck?

BURIL: That's correct. End of September.

ROBLES: The end of September the City of Pasadena agreement is up for renewal. So that's one of the -- that's the main driver, because we're trying to incorporate any issue that changes that in the agreement. And that's the main driver for both of us. So we do have a time line that we would like to see before the renewal is up. At least come to a meeting of the minds on how we're going to do this.

ZUROMSKI: Well, I think there's --

RIPPERDA: So my same question. It's like you just -- plus or minus a few weeks here of getting something from them makes it sounds like you're ready to start pumping their well in a month or two.

ZUROMSKI: No.

RIPPERDA: I can't believe that.

ROBLES: No.

RIPPERDA: Is it a year from now? Six months

from now? Two years from now?

ZUROMSKI: Well, I think our original plan was to have -- to be actually starting to pump -- no -- was to start pumping in January, February '02. And that is going to depend on several factors. I mean, we're going to be doing -- CH2MHILL is going to be doing their work at the same time in parallel with the negotiations with the City of Pasadena. So there's not going to be like we do ours, they do theirs, we do ours. And we're supposed to, according to our current schedule, by, I think the end of April, beginning of May time frame, or -- well, you'll hear about this before then. We want to have finalized our decision of what we're going to -- our removal action will be out there in OU 3, so which means probably in March -- March time frame, March-April time frame, we'll be giving you some ideas. And whether or not that's through formal EE/CAs or whatever we need to do, depending on what type of removal action we're going to do, we'd like to have a decision made because we need about six months to get something in place out there.

So we want to make that decision by the middle -- beginning or middle of summer so that six

months later we can be pumping.
RIPPERDA: Okay. That answers my question. So you plan to have enough modeling done in about five months --
ZUROMSKI: Oh, yeah.
RIPPERDA: -- to have a proposal for what your action is going to be, and you actually plan to implement the proposal in about a year.
ROBLES: Right.
ZUROMSKI: I'd say a year, year and three months. I'd say that depending on how soon we get our modeling rolling and CH2MHILL is going to be doing -- Foster Wheeler has already done extensive amount of work. And what they're going to be doing is capitalizing on that.
Again, we're trying to capitalize as much as what's already been done to get this going as soon as possible. And capitalizing on that work to make sure we get our decisions in place as soon as possible. Because another thing they're going to be looking at is a time to impact to the next wells, how -- you know, how soon do we need to do this in order to keep from impacting further wells down the line, and what kind of recommendations can we make to the City of Pasadena to keep that from -- that

delay, delay as long as possible so we can get our system in. So we're going to be trying to work those kind of issues as well.
ROBLES: My personal timetable is Monday is a trigger date for me that I have to call the City of Pasadena to say "Where's the proposal?" Because by the end of this month, if they still haven't done a proposal, I can't stop because we still got to get to next year to get the item in there. I'm going to say, "Look, we're going to have to press on. Hopefully we're going to incorporate what you have, but please give it to us as soon as possible." They had promised it by the end of November. And I know that they're having problems with trying to get that proposal together.
And It was basically an interim proposal. It was not supposed to be taken to the City Council. It was just basically internal engineering, what they thought and what they were looking for so that at least we could start working on an idea of what they wanted and some ideas of how they wanted it done so that we can incorporate it in our plans. But if -- if I don't get an answer by Monday, I've got to call them and say, "Hey, we've got an issue. The clock is ticking. We've got to keep moving."

ZUROMSKI: In a nutshell.
ROBLES: So that's where we're at. We were hoping we would have a proposal by the end of November and at least at this meeting we could talk to you about what they wanted so that we could ask your inputs on it. That was our main goal, for pushing this RPM meeting to the 7th of December. So --
RIPPERDA: I don't see that as that big of a problem. You still know conceptually that somehow you're going to be pumping water either out of that well or a new well in that location.
ZUROMSKI: Right.
ROBLES: Right.
RIPPERDA: Whatever the details are, you know, that can be worked out. But if you're going to be doing that you're going to be providing them with money to drill a new well somewhere yet to be determined. So whatever their exact proposal is that you're waiting for, I don't see it holding up the process to getting a remediation system in place in a year and four months. I know (UNINTELLIGIBLE) because like you have some paperwork you need to do right this second, but --
ZUROMSKI: We're doing it all at the same time.

So if we don't get the agreement until the end of next year, hopefully we'll have conceptually come to agreement that we can -- that our contractor will already be working on getting that system in place.
ROBLES: If it was that easy, Mark, I could tell you yeah. But it's the other stuff above that, you know, what are they seeking beyond that that was a concern to us. That was one of the major issues we wanted to talk a little bit about. Because I think that if it was that simple, we would be in negotiations right now. We can't, because they're seeking other items in there. That's tied into the agreement that we have right now, so that's a big concern for us. We're going to press on one way or the other, that's one of the things. Either -- if they still can't get us the Arroyo Well, we're going to ask that we get permission to put our own well in there, because as NASA headquarters says, we will probably not use -- they were under the assumption that if they gave us the Arroyo Well we would use it as an extraction well. We don't believe that we can use a production well for an extraction well. We will probably have to put our own well in there.
RIPPERDA: That's because it's not screened optimally?

ZUROMSKI: Probably not.
ROBLES: And it's old and it's in need of maintenance. That's one of the major issues, that we felt that we could optimize the extraction by putting in our own and closing that one.
ZUROMSKI: CH2 will be looking at what's been done in the past at that well, where have -- what zones has that been removing and containing the plume as it did for so many years and trying to mirror that into a new well specifically directed to target those zones. And they'll be looking at, you know, the history of that well, pumping history, where those screens are. It's screened on several, like five or six levels, so -- and we know that the bulk of the contaminant concentrations that are certain levels so we don't want to pump diluted -- pump from the bottom and treat cleaned water, pump from the top. We want to contain the plume. That's our goal here. It's not -- this is not the be all, end all, as we all know from the tree, is not to clean up the aquifer method. It's to contain the plume to keep from impacting it further, then look at possible, like our in situ work for treating the source on site kind of as an overall plan. But the first priority is to get that containment going so

we don't impact any -- we don't want to shut down any more wells than's already been shut down.
ROBLES: So that's where we are on that.
Any questions on any of the issues we talked about with the City of Pasadena, OU 1 and 3?
RIPPERDA: On the CERCLA process, if you would prefer to do an EE/CA and a removal action, that's okay. At least it allows for public involvement. You know, I imagine the public is going to be much more concerned with this than they are with your on-site SVE.
ROBLES: Yes.
ZUROMSKI: Uh-huh.
RIPPERDA: In which case I would prefer to see you guys do an FS and a ROD.
ZUROMSKI: Uh-huh.
RIPPERDA: I know that's tougher, and I'd rather -- you know, given an either/or situation, I'd rather have you doing the work faster with an EE/CA than slower with a ROD. But it seems like with a year and four months, if you really work that, you might be able to do an FS this summer and have a ROD in place by January-February. You could do an interim ROD.
ZUROMSKI: Uh-huh.

RIPPERDA: But, you know, otherwise --
ROBLES: Okay.
ZUROMSKI: Well, I think that we will -- we, basically, will have our contractor tell us what they can and can't do. And we will let them know that's your recommendation. That's valid.
ROBLES: Why we're pushing for the removal action is because the ancillary issues surrounding the Arroyo wells is really what's driving this. They came to us because they see that other wells are being impacted and they have the same problems with those wells that they have with the Arroyo. So there is a sensitivity issue on their part and they feel that they can't wait. I thought that that would have been the main driver for us to get a proposal as soon as possible. But it seems to be a little more difficult than we thought.
The other thing that I wanted to bring is item 8 on Other Items is we have a problem with this endangered species issue out there. It's going to be a main driver on that. So that's one of the things that -- why we felt that maybe in a removal action may help speed the process in getting this out there. We're planning to have a meeting with the Fish and Wildlife folks in Ventura the end of

January when they finally -- after they get their recommendation on what they consider critical habitat. We're hoping that this area here, the Arroyo Seco, is not considered critical habitat. But if it is, we've got another layer of issues that have to be dealt with.
BURIL: Recognize that the determination of whether it will be designated a critical habitat or not comes at the end of January.
ROBLES: Right. So that's why the issue of leaning to a removal action is going to --
RIPPERDA: That's what I don't understand (UNINTELLIGIBLE) the removal action with habitat issues.
ZUROMSKI: Still have to deal with it.
RIPPERDA: Yeah, you still have to deal with it. My biggest problem with the military always rushing towards removal actions as a way to speed the process up is -- the way it speeds the process up is you give interested parties less chance to be involved. So it makes me nervous when I hear like "Oh, we'll do a removal action" so we can kind of sneak around this endangered species habitat issue. You know, I wouldn't want you to be creating potential problems for yourselves by irritating Fish

and Wildlife or making the public feel like they didn't have full involvement.
ZUROMSKI: I think the reason may be going towards EE/CA would be because if we do have to go through the FS. Formally through the FS now because we would have to redo what has already been done because our -- we're basically changing the whole scope of things, and then also go through the proposed plan and public comment, we think that that might take longer than a year and four months. If not, if CH2MHILL thinks they can get this done in that amount of time, you're right, I think that's fine. I think that the goal is not here to -- is not to get around the public involvement process or using the stakeholders. I think we're getting everybody's input into it. But it's more the matter do I really need a formal FS versus can I get it through the EE/CA and then to the FS afterwards. Just for formality's sake.
RIPPERDA: yeah.
ZUROMSKI: That's the whole thing. It's not to get around anything because we know that we're going to have to do public meetings. And this is going to be -- it's just that if we have to do the FS, the proposed plan, the public meetings and the ROD, can

we do that in a year and four months versus can we can an EE/CA, do the public involvement, get it into place, then worry about doing -- you know, giving you the FS, doing the review cycle.
Because as I've seen through what Foster Wheeler's done here in the past, the review cycles are not 30 days for an FS that's that thick. And so every two months for every draft, draft-final, we just think that it would push it out further than the time we need to get in place to contain the plume. And so that judgment will be made based on what our contractor thinks he can do. And if he thinks he can do all the formal stuff, then that's fine.
ROBLES: We're hoping that our modeling will tell us that, okay, you have so many months.
ZUROMSKI: Right.
ROBLES: -- before the other one starts going off line.
ZUROMSKI: Right.
ROBLES: That's a big issue. We have an indication that that may be. That's why we're looking at '02 as the major issue of why we want to put something in place because we feel that's the time. But if CH2MHILL feel it's going to be

faster --
ZUROMSKI: Right.
ROBLES: -- we got a removal action.
ZUROMSKI: We just want to avoid impacting --
ROBLES: That's our big driver. It's not to get around endangered species.
RIPPERDA: I know. I agree. Time, I would rather see something sooner rather than later. You already have an FS, and all you really need to do is take the results of your different modeling runs with different injection and production scenarios. You know, most of the FS is there.
ZUROMSKI: Uh-huh. Uh-huh.
RIPPERDA: You'd have to rewrite the whole water treatment system --
ZUROMSKI: Uh-huh.
RIPPERDA: -- and you'd have to add in your new modeling runs.
ZUROMSKI: Uh-huh.
RIPPERDA: But it may not be as slow as you think. But if it is as slow, fine, do the EE/CA and removal action.
ZUROMSKI: Would it be possible, since we do have a draft FS that's already been through the comment period, to take what CH2MHILL comes up with,

take the comments that we've seen from the agencies and turn it into a draft-final?
See, because what we were thinking is that there's so much -- there may be so many changes that this draft-final is going to be like a new draft. And -- but if we can do is turn what we have as a draft into a draft-final with all this new information and go through only one more review cycle, it would be a lot more feasible than to go through two more steps. That's what we were envisioning, having to go through draft, draft final again, because if that was the case, then maybe it might take longer. And so using the EE/CA as a replacement for that, it's a one-shot deal --
RIPPERDA: Right.
ZUROMSKI: -- rather than a two-shot deal.
RIPPERDA: In which case I might rather have an EE/CA because --
ZUROMSKI: (UNINTELLIGIBLE)
RIPPERDA: -- we can basically let the removal action happen and then if we have disagreements on your placement of injection --
ROBLES: We can move it later.
RIPPERDA: -- and all that, then in the final ROD, we can fight about whether your system is

sufficient or not.
ZUROMSKI: We're not going to fight about it.
RIPPERDA: So, no, I would not be happy getting a brand new modeling report and calling it draft-final where we have no chance to comment.
ROBLES: Right. Right.
ZUROMSKI: Right. That's what I was thinking, too. We'd really want to go through the FS, through a draft, draft-final again. And so that was one of the reasons why we were thinking we might not have time to do two steps versus a one step, but --
But we will have CH2MHILL tell us what they can and cannot do.
RIPPERDA: The whole endangered species determination would mostly impact infiltration --
ZUROMSKI: Right
RIPPERDA: -- that's not injection?
ZUROMSKI: Right.
RIPPERDA: It doesn't really matter to having an injection well where you're adding tanks.
DAVOL: Unless you have to build a new well.
ROBLES: That's where the key issue. And also is the Arroyo Well. The area of the Arroyo Well, that portion, and it depends on what Fish and Wildlife say are disturb areas are still considered

critical habitat. We're hoping that's not the case.
No, we're not trying to get around the endangered species. But the key is, I've worked at a site where endangered species became the contention. We agreed on the technology, we agreed on the remediation, agreeing on how to address the endangered species issue was what we got (UNINTELLIGIBLE) on. I don't want to go into that again. That's -- it's terrible because you never win. The critters always win out.
RIPPERDA: No, not always. Ultimately they do, but this approach you take --
I've worked with a lot of endangered species issues, and, you know, Fish and Wildlife's goal is to protect the species. But, you know, they recognize the big picture. You know, kind of the difference between infiltration beds, which may take up a lot of surface area, a lot of habitat, versus --
ROBLES: Injection.
RIPPERDA: -- a well with a pad and a tank which is in the habitat area but doesn't completely overwhelm the habitat.
ROBLES: That's why we're leaning to the Beiner site as an old treatment plan that's not been used.

It's perfect for us to be able to use, so we don't want to disturb a big footprint. We just put a well down there, the Arroyo Well location and pump it up to the Beiner site and we treat the system. So we minimize the impact to any undisturbed areas on the Arroyo Seco. So that's what we're looking at. Okay.
Hopefully, if we can get an answer from CH2MHILL, on which way to go, we will contact you on our monthly telecon so at least we can see that.
ZUROMSKI: I would say -- I mean maybe we should go through and make sure there's no more issues.
But I would say that probably by the first February telecon, which would be the first Thursday of February, we would have a lot of information to discuss. And then by the next RPM meeting they should have a good concept, the model and a lot of this information ready to discuss on a preliminary basis.
RIPPERDA: Your deliverables from them should include a modeling report for the regulators.
ZUROMSKI: Yes.
RIPPERDA: So we can see, you know, both the model matching and the history matching and all that as well as, you know, the variety of runs they did

for rates and locations --
ROBLES: Okay.
ZUROMSKI: Yes.
RIPPERDA: -- before we get it in an EE/CA.
ROBLES: That's true.
Okay. If there's nothing on 6 or 7 items, then we can go to any other issues.
I talked about all my Other Items.
Are there any that the RPMs have or anybody have any issues they want to discuss?
RIPPERDA: What's the status of litigation?
BURIL: It's still there.
RIPPERDA: Okay.
ROBLES: Yeah. It's still there and we are --
RIPPERDA: The video (UNINTELLIGIBLE) DLJ attorney stopped calling me, so I assumed that something favorable may have happened for NASA.
ROBLES: Well, it was --
ZUROMSKI: She calls me now.
ROBLES: Well, the key is, it's still being worked out at the issues. So it's still in litigation. We can't talk about it. But it's being done at section.
RIPPERDA: Okay.
ROBLES: That's it. That's all we can say. I

don't know any more about it either because they stopped calling me. So I'm not sure of what the process is as well.
RIPPERDA: Your agreement with --
ROBLES: Lincoln Avenue?
RIPPERDA: -- Lincoln Avenue is going fine?
ROBLES: Yes.
RIPPERDA: They're happy?
ROBLES: Yes. They're happy so far.
BURIL: You can find out how happy they are soon enough. They have reached their $100,000 cap within the agreement as of the third quarter of this year. So they're going to be faced with no reimbursement for the fourth quarter by the terms of the agreement that they agreed to.
RIPPERDA: I guess that answers my question. They're about to be not happy. Okay.
ROBLES: The thing is, it was negotiated that we would cap our reimbursement to them for operating costs at 100,000. And we asked them, you know, make a determination. We felt that that was reasonable. They've gone over it. That's going to be a big issue. I know that's going to come back to us. We'll have to -- I'm waiting for the phone call.
RIPPERDA: So do they submit their operating

costs and you review it?
BURIL: They have operating costs submitted on a quarterly basis. I just received the third quarter about two weeks ago. And the previous two quarters and the third quarter, sum together, exceed $100,000 cap agreed to within the settlement agreement. So they are going to be -- when they receive partial payment for the third quarter and none at all for the fourth.
ROBLES: So we'll see. Hopefully you wouldn't get the call, I will. But I can't make any promises, Mark.
RIPPERDA: Yeah. He stopped calling me months ago, so everybody was happy.
ZUROMSKI: For the moment at least.
ROBLES: And that's all we have as such.
Mr. Atwater couldn't attend here from the Raymond Basin, but he wanted to be informed of the agenda. We're still working with him on that and we will be briefing the Raymond Basin at the next --
ZUROMSKI: We go to their -- I go to their meetings. The last one, actually, was back in October, I believe. The same day -- it was the same day as the perchlorate meeting down in Azusa. And they gave us -- we had -- prior to that meeting we

had met with them to get their approval to extract water. And all they asked from us is to submit to them a memo on a monthly basis of how much water we're extracting, which is minimal. And they gave us a -- for the two pilot tests they gave us a very, very large range that we can operate in, which we shouldn't come close to coming to half of what they've given us. But we briefed them on that as well. I'm not sure when the next meeting will be, but we'll be there.
BURIL: December.
ZUROMSKI: December.
ROBLES: Are there any other items?
Are you guys happy?
RIPPERDA: I'm happy.
GEBERT: I'm a happy camper, yeah.
ROBLES: We're hoping that we're progressing to your satisfaction and keep the dialogue going. This next year is going to be really work intensive as we get going on that. Hopefully by next year this time we'll be ready to do something in OU 1 and 3.
ZUROMSKI: Or hopefully we'll actually be doing something.
ROBLES: Hopefully we'll actually be doing something.

ZUROMSKI: Or you'll see something getting built out there.
ROBLES: So that's what we're shooting for on that.
Otherwise, I don't have any other items except to look at if there are any other issues.
ZUROMSKI: I was just going to ask one question from Alex. And I'm not sure -- you received Mark's -- I guess back in the pilot studies you guys received Mark's letter, I presume, after you sent us our letter. And is what we're doing so far -- I guess, is it in accordance with kind of what we all expected, or are we --
CARLOS: Kind of what I expected. I haven't heard any comment from our permit people.
ZUROMSKI: Okay. Because you'll have the final -- I mean, I've given you -- from what I've told you verbally today, that's what you're going to see in the report.
CARLOS: They got a copy of Mark's letter.
ZUROMSKI: Okay. I just want to make sure that we're not going something that you hadn't expected in some way or other.
BURIL: I would appreciate it, as the normal compliance officer for the Laboratory, if you even

have the inkling that something may be --
ZUROMSKI: Right.
BURIL: -- less than what you would prefer to see --
ZUROMSKI: Exactly.
BURIL: -- that you notify me immediately because I do not want the Laboratory faced with some kind of notice of violation being issued under any kind of statute that comes under the purview of the Regional Board.
ZUROMSKI: Right. And I think we talked about that in that -- when we first shut down the system back in October, we wanted to make sure that was not going to be an issue before we continued to operate.
CARLOS: I don't think that was an issue. I mean, if they had an issue, they would raise it.
ZUROMSKI: Okay. Because to this point the only issues that we're really having are with those two mineral constituents. So I just want to -- and I foresee it's going to be the same in the Foster Wheeler, probably, test, which is actually going to be shorter then the one we do with Foster Wheeler -- or with U.S. Filter. But it will be -- it's the same issue because it's the same type of technology. So --

ROBLES: Okay. If nobody --
RIPPERDA: One last. You guys had called me with a question of the indexing. I forget what it's called, but the RCRA inspection.
BURIL: We have that understood now. We got the right people working on it.
RIPPERDA: Because I couldn't find anything on you guys in it.
BURIL: It's there. We found the right person. Her name is Kim Thompson, Region IX.
ROBLES: I've left a message. Chuck has left a message.
BURIL: I've spoken to her.
ROBLES: Oh. Okay. Good.
BURIL: She's working on it currently. So we have the right person now. It's going forward.
ROBLES: We've been asked to clarify that. We were kind of shocked that something has been there so long.
BURIL: Quickly, what it was was apparently some kind of a State finding back in 1987 that's still on the books. She is researching it now to try to find out just what that was. But neither the State nor EPA can figure it out right now.
ROBLES: Which leads me to believe that it was

addressed but it was filed and never taken off the books. Usually a notice of violation that stays that long just doesn't stay in limbo. Something has to be done. So it was amazing to us.
BURIL: Shocking is a better word.
ZUROMSKI: I have one more -- one more Other Issue. And this goes to Richard.
What is the -- what are the results of the survey you're doing of sources, upgradient sources? Because I know that CH2MHILL is going to be interested in that in their analysis. I know that we had talked about June of this year or next year or something. I don't know. I'm just wondering if you had an update on that.
GEBERT: The last I heard they identified like eight potential dry cleaning facilities. These are all about a mile up on Foothill boulevard.
ZUROMSKI: Uh-huh.
GEBERT: And basically, nothing really has happened since then. We go through kind of an extensive screening process and then we work with one of the departments in EPA to do like a PASI, which takes a long time.
ZUROMSKI: Right.
GEBERT: As far as I know, nothing really has

happened.
ZUROMSKI: Okay.
GEBERT: There's no further information on it. We have a list of potential sources.
ZUROMSKI: Is that information public? Or is that something we can access when CH2MHILL is doing their analysis for us?
GEBERT: Sure. Sure. Oh, yeah. Exactly what those facilities are?
ZUROMSKI: Or where the facilities are.
GEBERT: Where they are? Sure. Oh, yeah
ZUROMSKI: Okay.
GEBERT: They need that --
ZUROMSKI: yeah, they'll need that.
GEBERT: Tell them to give me a call.
ZUROMSKI: Okay.
BURIL: Do you have any idea when the reports would be available for review?
GEBERT: No. As far as I know, they're not actively investigating.
ZUROMSKI: Okay.
GEBERT: What the timetable could be, I don't know that either.
ZUROMSKI: Okay.
ROBLES: Okay. If nobody has anything else,

let's talk about the next meeting. We were proposing for the next RPM meeting the second Thursday of March, which is the 8th. There's the 1st of March, which is the first Thursday. But we're talking about the 8th of March.
ZUROMSKI: Right. We're also thinking maybe the 1st of March or somewhere around there may actually be the time we would discuss the public meetings. So there may be two meetings in that short time frame.
HEATH: A calendar I just happen to have.
ROBLES: The 1st is right here.
RIPPERDA: So that would be a month before the public meeting, so we'd --
ZUROMSKI: Well, we'd probably have another --
RIPPERDA: -- have a dry run.
ZUROMSKI: Right. Either before, a week before or a week after that. So we'd probably have two meetings like within a week of each other, one for the official RPM meeting and one for the dry run.
ROBLES: What I would recommend is that on the 11th of January, which is the second Thursday of January, that we have a telecon, at which time we can plan for a working meeting for the public meetings between that time and the next RPM meeting,

I believe. But we need to have a working group meeting just for the -- whether it's by telecon or whether we meet together or so on, so that we can see -- because we got to coordinate Von Karman on that issue as well, the auditorium. And, then, that way we have a telecon on the 11th of January and anticipating March 8th as our RPM meeting.
ZUROMSKI: And let's have one in February, too, I think. We'll have another telecon.
ROBLES: Right. And the other telecon would be the 8th of February, which is also the second Thursday of February as well.
ZUROMSKI: When was the January one again? 11th?
ROBLES: 11th. Each of these are the second Thursdays of each of the months. The 11th of January, the 8th of February and the 8th of March.
Does anybody have any --
CARLOS: My calendar is open.
ZUROMSKI: Alex might not be here by then.
RIPPERDA: That sounds fine. Somewhat selfishly, I kind of prefer to have the RPM meeting and the pre-public meeting back-to-back days rather than subsequent weeks.
ZUROMSKI: Okay. We can do that.

RIPPERDA: Just to save flying down here two weeks in a row.
ZUROMSKI: Uh-huh. Sure.
ROBLES: Okay.
RIPPERDA: So like on a Thursday-Friday, or Wednesday-Thursday
ROBLES: So you want it to coincide --
ZUROMSKI: Like the 7th and the 8th or something like that.
ROBLES: Let's --
ZUROMSKI: We'll talk about that.
ROBLES: We'll talk about that and let you know on the 11th. That would be a perfect time --
ZUROMSKI: Yeah. We'll tell you in January. That's the January 11th meeting.
ROBLES: -- if that's possible.
RIPPERDA: Given how fast our RPM meetings have been going --
ZUROMSKI: Yeah. We could --
RIPPERDA: -- we could even do it in possibly -- it depends on, you know, your --
ZUROMSKI: The only thing I see is that there's going to a lot of presentation probably of modeling results. There's probably going to be some type of preliminary analysis of what's good, what's bad,

what's going to happen, what's not going to happen.
So just foreseeing that being more than a regular two, two and a half hour meeting, being maybe a half day. That's the only reason why we were thinking of having two days. But you're right. If we could get out of here by noon, come back after lunch with the other one, theoretically we could do them the same day. Maybe we could plan it that way and if necessary spill into the next day. So --
BURIL: May I suggest that in the past we planned for two days with the understanding that if it falls over into --
ZUROMSKI: Exactly.
BURIL: -- the second day, fine --
ZUROMSKI: Exactly.
BURIL: -- otherwise, if you're done at the end of the first day --
ZUROMSKI: We're done.
BURIL: -- everybody goes home early.
ZUROMSKI: Exactly. I think that's fine.
ROBLES: So would you rather that the 8th of March be the whole thing?
RIPPERDA: No. I would rather plan just like Chuck said. Plan for two days.
ZUROMSKI: 8th and 9th, yeah.

DAVOL: 7th and 8th.
ZUROMSKI: 7th and 8th, right.
RIPPERDA: It would be better if we happen to get done early. But, you know, rather than planning for the 8th and the 15th --
ZUROMSKI: Okay.
RIPPERDA: -- I'd rather plan for the 8th and 9th.
ZUROMSKI: Sure.
ROBLES: Okay.
ZUROMSKI: Okay.
ROBLES: I see what you're saying.
ZUROMSKI: Is -- I don't know, traveling Fridays for you -- would you rather do it Wednesday-Thursday than Thursday-Friday? Any preference?
GEBERT: It makes no difference to me.
RIPPERDA: I have no preference.
BURIL: Me either.
ZUROMSKI: That's fine. How about we'll just shoot for the 8th at this point, and whether it's the 7th and 8th or 8th and 9th, Peter and I, we'll discuss it with our contractor and we'll talk about it on the other --
ROBLES: We will get on the telecon on the 11th --

ZUROMSKI: Right.
ROBLES: -- of January to let you know so we can finalize that.
RIPPERDA: And as long as that's also okay with your contractor --
ZUROMSKI: Oh, sure.
RIPPERDA: -- if it's the same contractor doing both the groundwater modeling and the public meeting presentation.
ROBLES: Hopefully.
ZUROMSKI: They'll both be here. Because they'll both be --
RIPPERDA: So they are different contractors.
ZUROMSKI: Right.
RIPPERDA: So, then, it won't matter to them at all.
ROBLES: Right.
ZUROMSKI: Right. It's probably in -- the two contractors, one, Battelle, who's working on OU 2 stuff and one CH2MHILL. As I said earlier in the meeting, we'll probably be -- at some point in time will be the two contractors that we'll be dealing with on a --
ROBLES: Permanent basis.
ZUROMSKI: --just permanent basis, whereas right

now the other ones are there because of the way we've been receiving the work from Cal Tech. But -- So they'll probably be good at that point because they'll be able to present a lot of this information to you.
RIPPERDA: I think it would be good for Battelle to be here for any groundwater modeling stuff --
ZUROMSKI: Right.
RIPPERDA: -- just to hear it.
ZUROMSKI: I think so.
RIPPERDA: -- because if they're going to go to a public meeting a month from then they can't speak for groundwater issues. At least if they know something about it they don't sound like idiots when the public ask some general questions.
ROBLES: God forbid.
ZUROMSKI: Okay.
Any other final comments before we -- okay. Thank you.
ROBLES: That's all I have. So we can call the meeting adjourned. With no exceptions, the meeting is adjourned.
Thank you very much.
(The proceedings adjourned at 11:28 A.M.)

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